ARKANSAS TECH UNIVERSITY – SEATING PLAZA

SECTION 02785 - BRICK PAVERS

PART 1 - GENERAL

1.1 SECTION INCLUDES
A. Brick pavers.

B. Sand bed and sand joint filler.

1.2 RELATED SECTIONS
A. Section 02310 - Grading: Preparation of subsoil for pavers.

B. Section 02316 - Fill and Backfill: Compacted fill for pavers.

C. Section 07900 - Joint Sealers.

1.3 REFERENCES
A. ASTM 902 - Brick pavers for light traffic.

B. ASTM C 33 - Sand; setting bed material – 1 inch thick or greater.

C. ASTM C 144 – Jointing Sand; joints.

D. ASTM C 144 - Standard Specification for Aggregate for Masonry Mortar; 2004.

E. ASTM C 150 - Standard Specification for Portland Cement; 2004a.

F. ASTM C 270 - Standard Specification for Mortar For Unit Masonry; 2004a.

1.4 SUBMITTALS
A. See Section 01300 - Administrative Requirements, for submittal procedures.

1.5 MOCK-UP
A. Provide paver mockup, 4 feet long by 2 feet wide, which includes setting bed, pavers, joints, and edging.

B. Locate where directed.

C. Mockup may remain as part of the Work.

1.6 ENVIRONMENTAL REQUIREMENTS
A. Maintain cementitious materials and substrate surface to a minimum of 50 degrees F prior to, during, and 48 hours after completion of work.

B. At end of working day or during rainy weather, cover work exposed to weather with waterproof coverings, securely anchored.

1.7 EXTRA MATERIALS
A. See Section 01600 - Product Requirements, for additional provisions.

PART 2 - PRODUCTS

2.1 PAVER MATERIALS
A. Pavers: To match architecture, provide sample to Architect for approval. Consisting of a two brick blend.
1. Class – 5x
2. Abrasion resistance – Type II

2.2 SAND MATERIALS
A. Sand for Base: Clean washed, well-graded angular sand with a maximum particle size of 3/16 inch (4.8 mm.). Sand shall conform to ASTM C 33 specification for concrete aggregates, usually referred to as Concrete Sand.

B. Sand for Joints: polymer-modified graded sand for filling between interlocking pavers, patio blocks and concrete slabs.
   1. Quikrete – Powerloc Jointing Sand
   2. Sakrete – Paver Set Polymeric Sand
   3. Equal – Only as approved by Architect or Owner's representative.

2.3 FABRICATION

A. Fabrication and Tolerances For Paver Units

B. Dimensional Tolerances: PX - Over 3 to 4 inches, 3/32 inches; Over 5 to 8 inches, 1/8 in.

C. Size: 4 inches wide, 2 1/4 inches high, 8 inches length

PART 3 – EXECUTION

3.1 EXAMINATION

A. Verify that substrate is level, smooth, capable of supporting pavers and imposed loads, and ready to receive work of this section.

B. Verify gradients and elevations of substrate are correct.

3.2 INSTALLATION - SAND SETTING BED

A. Spread Concrete Sand evenly over prepared substrate to a maximum thickness of 1-1/2 inch.

B. Dampen and roller compact sand to level and even surface.

C. Screed and scarify top 1/2 inch of sand.

D. Place paver units in running bond pattern lay on edge, from straight reference edge.

E. Tamp and level paver units with mechanical vibrator until units are firmly bedded, level, and to correct elevation and gradients.

F. Sweep jointing sand into the paver joints. Follow with mechanical vibrator working jointing sand into joints. Recover with additional sand until firm joints are achieved. Remove excess sand. Dampen with a water mist following manufacturers instruction.

3.3 CLEANING

A. Clean soiled surfaces using cleaning solution. Do not harm pavers, joint materials, or adjacent surfaces.

B. Use non-metallic tools in cleaning operations.

C. Rinse surfaces with clean water.

D. Broom clean paving surfaces. Dispose of excess sand.

3.4 PROTECTION

A. Do not permit traffic over unprotected paver surface.

B. Protect paver surface with sheets of plywood.

END OF SECTION

SECTION 03450 - ARCHITECTURAL PRECAST CONCRETE - PLANT CAST

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes architectural precast concrete units to match existing precast units. (See 2.8, I. Surface Finish)

B. Architectural precast concrete includes the following:
   1. Special formed and textured units.

C. Related Sections: The following sections contain requirements that relate to this section:
   1. Water repellants in Division 7.

1.3 SUBMITTALS

A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.

B. Product data and instructions for manufactured materials and products. Include mix designs, certifications, and laboratory test reports as required.
   1. Include water absorption test reports for units with exterior exposure.

C. Shop drawings prepared by or under supervision of a qualified professional engineer showing complete information for fabrication and installation of precast concrete units. Indicate member dimensions and cross-section; fabrication tolerances; location, size, and type of reinforcement, including special reinforcement; and lifting devices necessary for handling and erection. All shop drawings shall be stamped by a professional engineer registered in the State of Arkansas.
   1. Include erection procedure for precast units, sequence of erection, and erection tolerances.

D. Show layout, dimensions, and identification of each precast unit corresponding to sequence and procedure of installation.

E. Show location and details of anchorage devices to be embedded in other construction.
   1. Indicate protective finishes for metal items including connectors.

F. Samples approximately 12 by 12 by 2 inches to illustrate quality, color, and texture of surface finish, with and without water-repellent coating.
   1. Submit samples of cast-in gaskets, anchorages, and other attachments and accessories as requested by Owner’s project representative.

1.4 QUALITY ASSURANCE

A. Codes and Standards: Comply with provisions of following codes, specifications, and standards, except as otherwise indicated:
   1. ACI 318, "Building Code Requirements for Reinforced Concrete."
   2. Concrete Reinforcing Steel Institute, "Manual of Standard Practice."
   3. Prestressed Concrete Institute MNL 117, "Manual for Quality Control for Plants and Production of Architectural Precast Concrete Products."
   4. American Welding Society, "Structural Welding Code."

B. Engineer Qualifications: A professional engineer legally authorized to practice in jurisdiction where project is located and experienced in providing engineering services that have resulted in successful installation of

architectural precast concrete units similar in material, design, and extent as required for this Project.

C. Fabricator Qualifications: Firm having a minimum of 5 years successful experience in fabrication of architectural precast concrete units, similar to members required for this project, will be acceptable. Fabricator must have sufficient production capacity to produce, transport, and deliver required units without causing delay in the work.
   1. Fabricator must be producer/member of Precast Concrete Institute (PCI) or to be producer/member of the Architectural Precast Association or participate in its Plant Certification Program.

D. Design modifications may be made only as necessary to meet field conditions and to ensure proper fitting of the work and only as acceptable to Architect. Maintain general design concept shown without increasing or decreasing sizes of members or altering profiles and alignment shown. Provide complete design calculations and drawings prepared by a professional engineer registered in State where project is located, if design modifications are anticipated.

E. Erector Qualifications: Minimum of 3 years successful experience in erection of architectural precast concrete units similar to units required for this project.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver precast concrete units to project site in such quantities and at such times to assure continuity of installation. Store units at project site to prevent cracking, distorting, warping, staining, or other physical damage and so that markings are visible. Lift and support units only at designated lifting or supporting points as shown on final shop drawings.

PART 2 - PRODUCTS

2.1 FORMWORK

A. Provide forms and, where required, form-facing materials of metal, plastic, wood, or other acceptable material that is nonreactive with concrete and will produce required finish surfaces.

B. Unless forms for plant-manufactured prestressed concrete units are stripped prior to detensioning, design forms so that stresses are not induced in precast units due to deformation of concrete under prestress or to movement during detensioning.

2.2 REINFORCING MATERIALS

A. Reinforcing Bars: ASTM A 615, Grade 60, deformed.

B. Epoxy-Coated Reinforcing Bars: ASTM A 775.

C. Galvanized Reinforcing Bars: ASTM A 767, Class II (2.0 oz. zinc psf), hot-dip galvanized after fabrication and bending.

D. Steel Wire: ASTM A 82, plain, cold-drawn, steel.

E. Welded Wire Fabric: ASTM A 185.

F. Welded Deformed Steel Wire Fabric: ASTM A 497.

G. Supports for Reinforcement: Provide supports for reinforcement including bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing.
   1. For exposed-to-view concrete surfaces, where legs of supports are in contact with forms, provide supports with legs that are plastic protected (CRSI, Class 1) or stainless steel protected (CRSI, Class 2).

2.3 CONCRETE MATERIALS

A. Portland Cement: ASTM C 150, Type I or Type III.

1. Use only one brand, type, and source of supply of cement throughout the project, unless otherwise acceptable to Architect.
2. Use white Portland cement for facing concrete mix to match precast on adjacent library building.
3. Standard gray Portland cement may be used for nonexposed backup concrete.

B. Coarse Aggregate for Facing Mixes: ASTM C 33; hard, durable, selected, and graded; free of material that causes staining or reacting with cement.

C. Fine Aggregate for Facing Mixes: ASTM C 33; manufactured sand of same material as coarse aggregate, unless otherwise acceptable to Architect.

D. Water: Drinkable, free from foreign materials in amounts harmful to concrete and embedded steel.

E. Air-Entraining Admixture: ASTM C 260.

F. Water-Reducing, Retarding, or Accelerating Admixtures: ASTM C 494, type as selected by Fabricator and containing not more than 0.1 percent chloride ions.

2.4 CONNECTION MATERIALS

A. Steel Plates: Structural quality, hot-rolled carbon steel, ASTM A 283, Grade C.

B. Steel Shapes: ASTM A 36.

C. Anchor Bolts: ASTM A 307, low-carbon steel bolts, regular hexagon nuts and carbon steel washers.

D. Finish of Steel Units: Exposed units, hot-dip galvanized after fabrication, ASTM A 153; inserts cast into precast units, hot-dip galvanized, electrogalvanized, or cadmium coated; others shop painted with rust-inhibitive primer.

2.5 GROUT MATERIALS

A. Cement Grout: Portland cement and clean, natural sand, ASTM C 404. Mix at ratio of 1.0 part cement to 3.0 parts sand, by volume, with minimum water required for placement and hydration.

B. Nonmetallic Shrinkage-Resistant Grout: Premixed, nonmetallic, noncorrosive, nonstaining product containing selected silica sands, portland cement, shrinkage compensating agents, and plasticizing and water-reducing agents, complying with CRD-C621.
1. Available Products: Subject to compliance with requirements, products that may be incorporated in the work include, but are not limited to, the following:
2. Products: Subject to compliance with requirements, provide one of the following:
    a. "100 Non-Shrink Grout," Conspec Mktg. & Mfg. Co.
    b. "Supreme Grout," Cormix.
    c. "Sure Grip Grout," Dayton Superior.
    d. "Euco N.S.," Euclid Chemical Co.
    e. "Crystex," L & M Construction Chemicals, Inc.
    f. "Masterflow 713," Master Builders, Inc.
    g. "Sealtight 588 Grout," W.R. Meadows, Inc.
    h. "Propak," Protex Industries, Inc.
    i. "Set Non-Shrink," Set Products, Inc.
    j. "Five Star Grout," U.S. Grout Corp.

2.6 PROPORTIONING AND DESIGN OF MIXES

A. Prepare design mixes for each type of concrete required.

B. Design mixes may be prepared by independent testing facility or by qualified precast manufacturing plant personnel, at precast fabricator's option.

C. Proportion mixes by either laboratory trial batch or field experience methods, using materials to be employed on the project for each type of concrete required, complying with ACI 318.

D. Facing Mix: Standard-weight concrete consisting of specified Portland cement, aggregates, admixtures, and water to produce the following properties:
   1. Compressive Strength: 5000 psi minimum at 28 days.
   2. Total Air Content: Not less than 4 percent nor more than 6 percent.
   3. Water Absorption: Not to exceed 5 to 6 percent by weight, except between 3 to 4 percent for sloping surfaces (sills).

E. Backup Concrete: Standard-weight concrete with compressive strength of 5000 psi at 28 days.

F. Submit written reports to Architect of proposed mix for each type of concrete at least 15 days prior to start of precast unit production. Do not begin concrete production until Architect has reviewed mixes and evaluations.

G. Adjustment to Concrete Mixes: Mix design adjustments may be requested when characteristics of materials, job conditions, weather, test results, or other circumstances warrant. Laboratory test data for revised mix designs and strength results must be submitted to and accepted by Architect before using in the work.

H. Admixtures: Use air-entraining admixture in strict compliance with manufacturer's directions. Admixtures to increase cement dispersion or provide increased workability for low-slump concrete may be used subject to Architect's acceptance.

I. Use amounts as recommended by admixture manufacturer for climatic conditions prevailing at time of placing. Adjust quantities of admixtures as required to maintain quality control.

2.7 FABRICATION

A. General: Fabricate precast concrete units complying with manufacturing and testing procedures, quality control recommendations, and following dimensional tolerances, unless otherwise indicated.

B. Forms: Accurately construct forms mortar-tight and of sufficient strength to withstand pressures due to concrete placing operations, temperature changes, and, when prestressed, pretensioning and detensioning operations. Maintain form work to provide completed precast concrete units of shapes, lines, and dimensions indicated, within specified fabrication tolerances.

C. Dimensional Tolerances of Finished Units: Overall height and width measured at face adjacent to mold at time of casting:
   1. 10 feet or less: Plus or minus 1/8 inch.
   2. 10 feet to 20 feet: Plus 1/8 inch, minus 3/16 inch.
   3. 20 feet to 30 feet: Plus 1/8 inch, minus 1/4 inch.
   4. Each additional 10 feet: Plus or minus 1/16 inch per 10 feet.
   5. Angular deviation of plane of side mold: 1/32 inch per 3 inches depth or 1/16 inch total, whichever is greater.
   6. Openings within one unit: Plus or minus 1/4 inch, except plus or minus 1/8 inch for windows and door frames.
   7. Out of square (difference in length of two diagonal measurements): 1/8 inch per 6 feet or 1/4 inch total, whichever is greater.
   8. Thickness: Minus 1/8 inch, plus 1/4 inch.
   9. Tolerances of other dimensions not otherwise indicated: Numerically greater of plus or minus 1/16 inch per 10 feet, or plus or minus 1/8 inch.

D. Position Tolerances: For cast-in items measured from datum line locations as shown on reviewed shop drawings:
   1. Anchors and inserts: Within 3/8 inch of centerline location.
   2. Blockouts and reinforcements: Within 1/4 inch of position shown on shop drawings, where such positions have structural implications or affect concrete cover; otherwise within plus or minus 1/2 inch.

E. Fabricate units straight, smooth, and true to size and shape, with exposed edges and corners precise and square

unless otherwise indicated.

1. Precast units that are warped, cracked, broken, spalled, stained, or otherwise defective will not be acceptable.

F. Expansion Joints: Free of grout, mortar, or other obstructions to expansive movement, with expansion joint filler where indicated.
   1. Sills: Midpoint between mullions, with expansion filler strip.
   2. Copings: Every joint between units, unless otherwise indicated. Align joints with vertical expansion joints in adjacent brick.
   3. Mullions: Provide for expansion at top connectors to rigid building structural members.

G. Cast-In Items: Provide reglets, slots, holes, and other accessories in units to receive windows, cramps, dowels, reglets, waterstops, flashings, and other similar work as indicated.
   1. Provide inserts and anchorages cast into units, for attachment of loose hardware as required.

H. Anchorages: Provide loose steel plates, clip angles, seat angles, anchors, dowels, cramps, hangers, and other miscellaneous steel shapes not provided by other trades, necessary for securing precast units to supporting and adjacent members.

   1. Accessories:
      a. Anchors: Type and size indicated, fabricated from stainless steel complying with ASTM A 240/A 240M, ASTM A 276, or ASTM A 666, Type 304.
      b. Anchors: Type and size indicated, fabricated from steel complying with ASTM A 36/A 36M, and hot-dip galvanized to comply with ASTM A 123/A 123M.
      c. Dowels: Round stainless-steel bars complying with ASTM A 276, Type 304, and 1/2-inch diameter.

I. Surface Finish: Fabricate precast units and provide exposed surface finishes as follows:
   1. Smooth acid etched finish to a depth which exposes only the fine aggregates and surrounding cement matrix with a white to off-white color to match the color of sample provided by owner. Sample must be returned.
   2. As-cast or float finish for unexposed surfaces.

PART 3 - EXECUTION

3.1 INSTALLATION

A. General: Deliver anchorage items to be embedded in other construction before start of such work. Provide setting diagrams, templates, instructions, and directions as required for installation.

B. Do not install precast units until supporting concrete has attained minimum allowable design compressive strength.

C. Install precast concrete members plumb, level, and in alignment within PCI MNL-117 and specified limits of erection tolerances. Provide temporary supports and bracing as required to maintain position, stability, and alignment as members are being permanently connected.
   1. Maintain horizontal and vertical joint alignment and uniform joint width as erection progresses.

D. Accessories: Install clips, hangers, and other accessories required for erection of precast units to supporting members and backup materials.

E. Anchor units in final position by bolting, welding, grouting, or as otherwise indicated. Remove temporary shims, wedges, and spacers as soon as possible after anchoring and grouting are completed.
   1. At bolted connections use lock washers or other acceptable means to prevent loosening of nuts.
   2. At welded connections apply rust-inhibitive coating on damaged areas, same as shop-applied material. Use galvanizing repair coating on galvanized surfaces.

F. Cleaning: Clean exposed facings to remove dirt and stains on units after erection and completion of joint

treatments. Wash and rinse in accordance with precast manufacturer's recommendations. Protect other work from damage due to cleaning operations. Do not use cleaning materials or processes that could change the character of exposed concrete finishes.

3.2 ERECTION TOLERANCES

A. Warpage: Fabricate and install wall panels so that each panel after erection complies with following dimensional requirements:
   1. Bowing (concave or convex) of any part of a flat surface not to exceed length of bow/360, with a maximum of 3/4 inch up to 30 feet.
   2. Maximum warpage of one corner out of plane of other three, the greater of 1/16 inch per foot distance from nearest adjacent corner, or 1/8 inch.

B. Tolerances for Location of Precast Units: Fabricate and erect precast units so that joints between panels meet the following:
   1. Face width of joints: Plus or minus 3/16 inch.
   2. Joint taper: 1/40 inch per foot length, with maximum length of tapering in one direction of 10 feet.
   3. Step in face: 1/4 inch.
   4. Jog in alignment of edge: 1/4 inch.
   5. Alignment for exterior panels is outside face.
   6. Variation from plumb: Plus or minus 1/2 inch in any 40-foot run.
   7. Variation from level: Plus or minus 1/2 inch in any 40-foot run.

3.3 PERFORMANCE REQUIREMENTS

A. Conduct inspections, perform testing, and make repairs or replace unsatisfactory precast units as required.
   1. Limitations as to amount of patching permitted are subject to acceptance by Architect.

B. In addition to above, in-place precast units may be rejected for the following:
   1. Exceeding specified installation tolerances.
   2. Damage during construction operations.
   3. Surface finish deficiencies in exposed-to-view surfaces.
   4. Other defects as listed in PCI MNL-117.

END OF SECTION

SECTION 07190 - WATER REPELLENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes clear water-repellent coatings for the following vertical and nontraffic horizontal surfaces:

1. Precast concrete water repellants.

B. Related Sections include the following:
1. Division 3 Sections for architectural precast concrete.

1.3 SUBMITTALS

A. Product Data: Include manufacturer's specifications, surface preparation and application instructions, recommendations for water repellents for each surface to be treated, and protection and cleaning instructions. Include data substantiating that materials are recommended by manufacturer for applications indicated and comply with requirements.

B. Samples: Of each substrate indicated to receive water repellent, 12 inches (300 mm) square, with specified repellent treatment applied to half of each sample.

C. Applicator Certificates: Signed by manufacturer certifying that the applicator complies with requirements.

D. Certification by water repellent manufacturer that products supplied comply with local regulations controlling use of VOCs.

E. Material Test Reports: Indicate and interpret test results for compliance of water repellents with requirements indicated.

F. Warranty Request for Prior Approval: Submit a draft of specified warranty.

1.4 QUALITY ASSURANCE

A. Applicator Qualifications: Engage an experienced applicator who employs only persons trained and approved by water repellent manufacturer for application of manufacturer's products.

B. Regulatory Requirements: Comply with applicable rules of pollution-control regulatory agency having jurisdiction in Project locale regarding VOCs and use of hydrocarbon solvents.

C. Field Samples: Architect will select one representative surface for each substrate to receive water repellents. Apply water repellent to each substrate, with either partial or full coverage as directed. Comply with application requirements of this Section.
1. Obtain Architect's approval of field samples before applying water repellents.
2. Maintain field samples during construction in an undisturbed condition as a standard for judging the completed Work.

1.5 PROJECT CONDITIONS

A. Weather and Substrate Conditions: Do not proceed with application of water repellent under any of the following conditions, except with written instruction of manufacturer:
1. Ambient temperature is less than 40 deg F (4.4 deg C).

2. Concrete surfaces and mortar have cured for less than 28 days.
3. Rain or temperatures below 40 deg F (4.4 deg C) are predicted within 24 hours.
4. Application is earlier than 24 hours after surfaces have been wet.
5. Substrate is frozen or surface temperature is less than 40 deg F (4.4 deg C).
6. Windy condition exists that may cause water repellent to be blown onto vegetation or surfaces not intended to be coated.

1.6WARRANTY

A. General Warranty: The special warranty specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by the Contractor under requirements of the Contract Documents.

B. Special Warranty: Submit a written warranty, executed by the applicator and water repellent manufacturer, covering materials and labor, agreeing to repair or replace materials that fail to provide water repellency within the specified warranty period. Warranty does not include deterioration or failure of coating due to unusual weather phenomena, failure of prepared and treated substrate, formation of new joints and cracks in excess of 1/16 inch (1.5 mm) wide, fire, vandalism, or abuse by maintenance equipment. Manufacturer's representative to perform a Rilem II.4 test.
   1. Warranty Period: 3 years from date of Substantial Completion. Non-proprated labor and materials warranty.

2PART - PRODUCTS

2.1MANUFACTURERS

A. Products: Subject to compliance with requirements, All exterior concrete and masonry surfaces to be treated with one of the following:
   1. Siloxanes: With 3.3 lb/gal. (400 g/L) VOCs or less.
      a. ChemMasters; Aquanil Plus WB
      b. Conproco Corporation; Conpro Shield MX
      c. Diedrich Technologies, Inc.; 303-C
      d. Euclid Chemical Company (The), an RMP company; Euco-Guard VOX
      e. Rainguard Products Company; MicroSeal
      f. SaverSystems; DEFY Water Repellent for Birick
      g. Specco Industries, Inc.; Waterstopper S-10 WB Siloxane
   2. Silane/Siloxane Blends: With 3.3 lb/gal. (400 g/L) VOCs or less.
      a. Enviroseal Double 7 for Brick; Chem Rex, Inc.
      b. Advanced Chemical Technologies, Inc.; Sil-Act Dir-Treat
      c. Degussa Corporation; Protectosil Aqual-Trete EM
      d. Fabrikem Manufacturing Ltd.; Fabrishield 900 Series
      e. Karnak Corporation; LL10
      f. Pecora Corporation; KlereSeal 910-W
      g. Sika Corporation, Inc.; Sikagard 701 W
      h. Symons by Daton Superior; Silozane/Silane 10%
      i. Tnemec Inc.; Dur A Pell 10

2.2WATER REPELLENTS

A. Siloxanes: Penetrating water repellent. Alkylalkoxysiloxanes that are oligomerous with alcohol, ethanol, mineral spirits, water, or other proprietary solvent carrier.

B. Silane/Siloxane Blends: Consisting of silanes and siloxanes blended to achieve a particular penetration and protection on a specific substrate.

C. VOC-Complying Water Repellents: Products complying with local regulations controlling use of VOCs, as certified by manufacturer.

3PART - EXECUTION

3.1PREPARATION

A. Clean substrate of substances that might interfere with penetration or performance of water repellents. Test for moisture content, according to repellent manufacturer's written instructions, to ensure surface is sufficiently dry.

1.

B. Test for pH level, according to water repellent manufacturer's written instructions, to ensure chemical bond to silicate minerals.

C. Protect adjoining work, including sealant bond surfaces, from spillage or blow-over of water repellent. Cover adjoining and nearby surfaces of aluminum and glass if there is the possibility of water repellent being deposited on surfaces. Cover live plants and grass.

D. Coordination with Sealants: Do not apply water repellent until sealants for joints adjacent to surfaces receiving water-repellent treatment have been installed and cured.
   1. Water-repellent work may precede sealant application only if sealant adhesion and compatibility have been tested and verified using substrate, water repellent, and sealant materials identical to those used in the work.

3.2APPLICATION

A. Apply a heavy-saturation spray coating of water repellent on surfaces indicated for treatment using low-pressure spray equipment. Comply with manufacturer's written instructions for using airless spraying procedure, unless otherwise indicated.

B. Apply a second saturation spray coating, repeating first application. Comply with manufacturer's written instructions for limitations on drying time between coats and after rainstorm wetting of surfaces between coats. Consult manufacturer's technical representative if written instructions are not applicable to Project conditions.

3.3FIELD QUALITY CONTROL

A. Manufacturer's Field Service: Provide services of a factory-authorized technical service representative to inspect and approve the substrate before application and to instruct the applicator on the product and application method to be used.

3.4CLEANING

A. Protective Coverings: Remove protective coverings from adjacent surfaces and other protected areas.

B. Immediately clean water repellent from adjoining surfaces and surfaces soiled or damaged by water-repellent application as work progresses. Repair damage caused by water-repellent application. Comply with manufacturer's written cleaning instructions.

END OF SECTION